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CENTRAL INTELLIGENCE AGENCY

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COUNTRY	East Germany	REPORT	
SUBJECT	Report of the June 1955 Meeting of the Receiver Tubes Working Group	DATE DISTR.	2 February 1956
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This is UNEVALUATED Information

SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

1. The Working Group for Receiver Tubes, a subdivision of the Working Party for Electronic Tubes, met in Erfurt in June 1955 to consider how far tubes in production and development in East Germany meet the requirements of instrument-building factories and to determine, in the light of world market demands, what new developments should be undertaken.

2. The Working Group's findings were collated in a report which was issued in Erfurt on 18 June 1955 and circulated as a confidential document to the members of the Working Group. It is summarized in the paragraphs which follow.

3. In 1955 there were available in East Germany the following miniature tubes for radio and television:

   a. Indirectly-heated tubes

      Diode for high-frequency rectification: E/UAA 91
      " " " " " combined with triode: E/U/PABC 80
      " " " " " " " pentode: E/UBF 80
      Triodes: EC 84, E/UC 92, EC 94
      Double triodes: ECC 82, ECC 83, E/PCC 84, E/U/PCC 85, ECC 91, ECC 81
      Triodes combined with pentode: E/PCF 82, E/PCL 81
      Pentodes: E/UF 80, E/UF 85, E/UF 89, EF 864, EF 96
      End pentodes: E/PL 81, E/PL 83, E/P/UL 84
      Hexodes: E/UCH 81, EH 860
      Mains' rectifier tubes: EZ 80, E/PY 81, UY 85
      Magic eyes: E/UM 800, E/UM 80
      High voltage rectifier tubes: EY 51, E/DY 86

   It was claimed that these types afforded all the same facilities as the much larger number of US types and met all the requirements of instrument designers, except for use in connection with 53 cm image tubes with deflection angles of 75° to 90°.

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STATE	X	ARMY	X	NAVY	X	AIR	X	FBI		AEC		ORR EV	X	OSI EV	X

(Note: Washington distribution indicated by "X"; Field distribution by "#".)

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For this purpose, PL 36 and PCL 82 would be included in the 1956 development plan.

b. Battery-heated tubes

With a heating current of 50 mA:
DAF 91, DC 90, DF 91, DL 92, DL 94, DK 92

With a heating current of 25 mA:
DAF 96, DF 96, DK 96, DL 96

It was claimed that these tubes sufficed for the building of medium wavelength receivers. For VHF, however, a triode, DC 96, and a control pentode, DF 97 were required to complete the 96 Series (with 25 mA heating current) and these must be developed during 1956. A magic eye for battery receivers, similar to the West European DM 71, was also required.

4. In 1955, the following East German subminiature tubes were available:

a. Indirectly-heated tubes: none available. The 1955 development plan includes the following:

(1) An HF pentode with high mutual conductance, equivalent to the Western EF 72, but fitted with a separately-mounted suppressor grid, so that it can also be used instead of the EF 70.

(2) A VHF oscillator triode, equivalent to the EC 70 (instead of the mixer pentode originally envisaged).

The 1956 plan includes a control pentode, a rectifier tube, an end pentode, and a coincidence tube (Koinzidenzroehre) for electronic instruments.[1]

b. Directly-heated tubes: DF 67 and DL 67, for use in hearing aids. The 1956 development plan includes a highest frequency pentode for HF amplification and mixing, a more powerful end pentode, a triode for oscillator circuits, and an indirectly-heated diode with very small filament power.[2]

5. Emphasis was laid on the necessity for East Germany to be able to meet a large demand for transistors.

6. a. The Working Group divided "commercial tubes" into three categories: indirectly-heated tubes for industrial electronics, indirectly-heated tubes for long-distance communications, and directly-heated tubes for commercial communications (including in this category the requirements of the armed forces). For all of these tubes there were stricter requirements for longevity, reliability in service, and ability to stand up to shock and vibration than in the case of broadcast and TV receiver tubes.

b. The 1955 development plan for commercial tubes includes only the following three types, with indirectly-heated cathodes:

Pentode EL 861, equivalent to E 81 L
" EF 860, " " EF 80
" EF 861, " " E 180 F

c. The following types are to be developed in the future:

Pentode EF 864, equivalent to EF 804[3]
" EL 863, " " EL 83
" EL 864, " " UL 84, but with 6.3 volt heating at 0.76 A
Double triode ECC 960, equivalent to E 90 CC
" " ECC 865, " " ECC 85.

7. The Working Group's findings ended with the following comments:

a. The findings were based on the assumption that wavelengths of not less than 1 meter would be used in the immediate future. However, if higher frequencies were used, the tubes mentioned would still meet the greater part of the additional requirements.

b. An exhortation to improve quality and reduce costs.

c. A note that tubes for special purposes, noise diodes, electrometer tubes, test diodes, etc, although important, had been excluded from the Working Group's consideration because of the very small numbers involved.

Comment: The "coincidence tube" appears to be the term used in conjunction with counter tubes in research on high-energy particles. 25X1

Comment: The indirectly-heated diode was included in the list of directly-heated tubes in the original German document. 25X1

Comment: In paragraph 3a above, it is stated that the EF 864 pentode was available in East Germany in 1955. 25X1

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